

Physics 722, Spring 2021

Problem Set 4

Due Thursday, March 4 – but does not need to be turned in.

1. *Photon Self Energy Calculation*

a) Show that the Feynman rule for the vertex corresponding to the counterterm $\mathcal{L}_{\text{ct}} = -A/4 \tilde{F}_{\mu\nu} \tilde{F}^{\mu\nu}$ is proportional to $(q^2 g_{\mu\nu} - q_\mu q_\nu)$.

b) Review the calculation of the photon self energy from class.